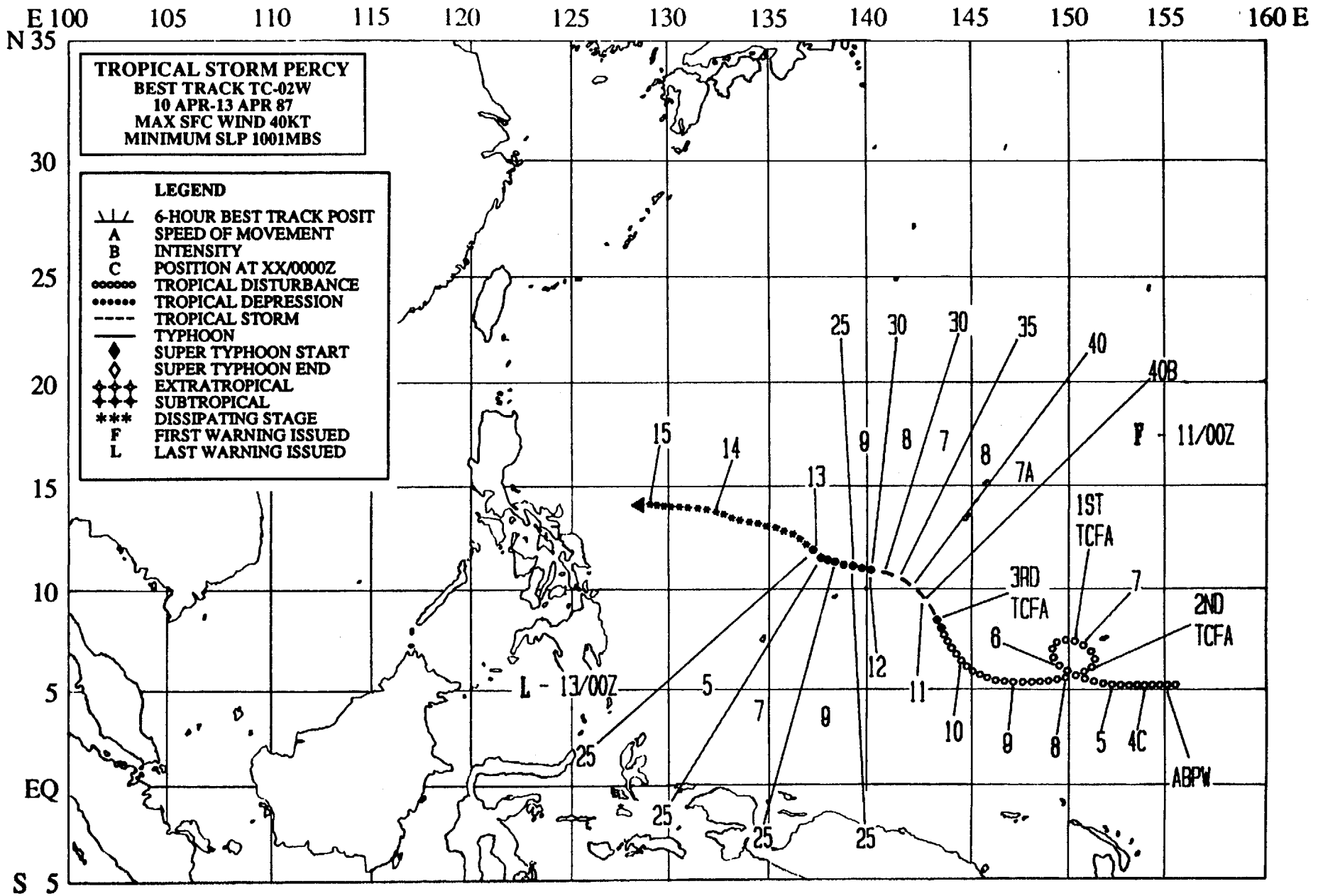
TROPICAL STORM PERCY
BEST TRACK TC-02W
10 APR-13 APR 87
MAX SFC WIND 40KT
MINIMUM SLP 1001MBS
LEGEND
6-HOUR BEST TRACK POSIT
A SPEED OF MOVEMENT
B INTENSITY
C POSITION AT XX/0000Z
TROPICAL DISTURBANCE
TROPICAL DEPRESSION
TROPICAL STORM
TYPHOON
SUPER TYPHOON START
SUPER TYPHOON END
EXTRATROPICAL
SUBTROPICAL
*** DISSIPATING STAGE
F FIRST WARNING ISSUED
L LAST WARNING ISSUED
E 100 105 110 115 120 125 130 135 140 145 150 155 160 E
N 35 30 25 20 15 10 5 EQ S 5
F - 11/00Z
L - 13/00Z
1ST TCFA
2ND TCFA
3RD TCFA
ABPW

TROPICAL STORM PERCY (02W)

Percy was the only significant western North Pacific tropical disturbance during April. The vortex struggled to get started, only achieved minimal tropical storm intensity and tenaciously resisted dissipation.

During the first week of April, brisk 30 kt (15 m/sec) northeasterly trades clashed with a low-latitude westerly surge associated with a tropical disturbance in the southern hemisphere. This created an area of cyclonic rotation in the low-level wind field and slightly lower pressures in the eastern Caroline Islands. The resulting convection was first noted on the Significant Tropical Weather Advisory (ABPW PGTW) for 030600Z April. The slow formation of a cloud system led to the issuance of a Tropical Cyclone Formation Alert (TCFA) at 061800Z. Maximum sustained surface winds, at that time, were estimated to be 25 to 30 kt (13 to 15 m/sec). The TCFA was reissued at 071800Z because the area had increased in organization, although the overall convection decreased. By 081800Z, the mid- to upper-level winds over the system increased and the second TCFA was cancelled.

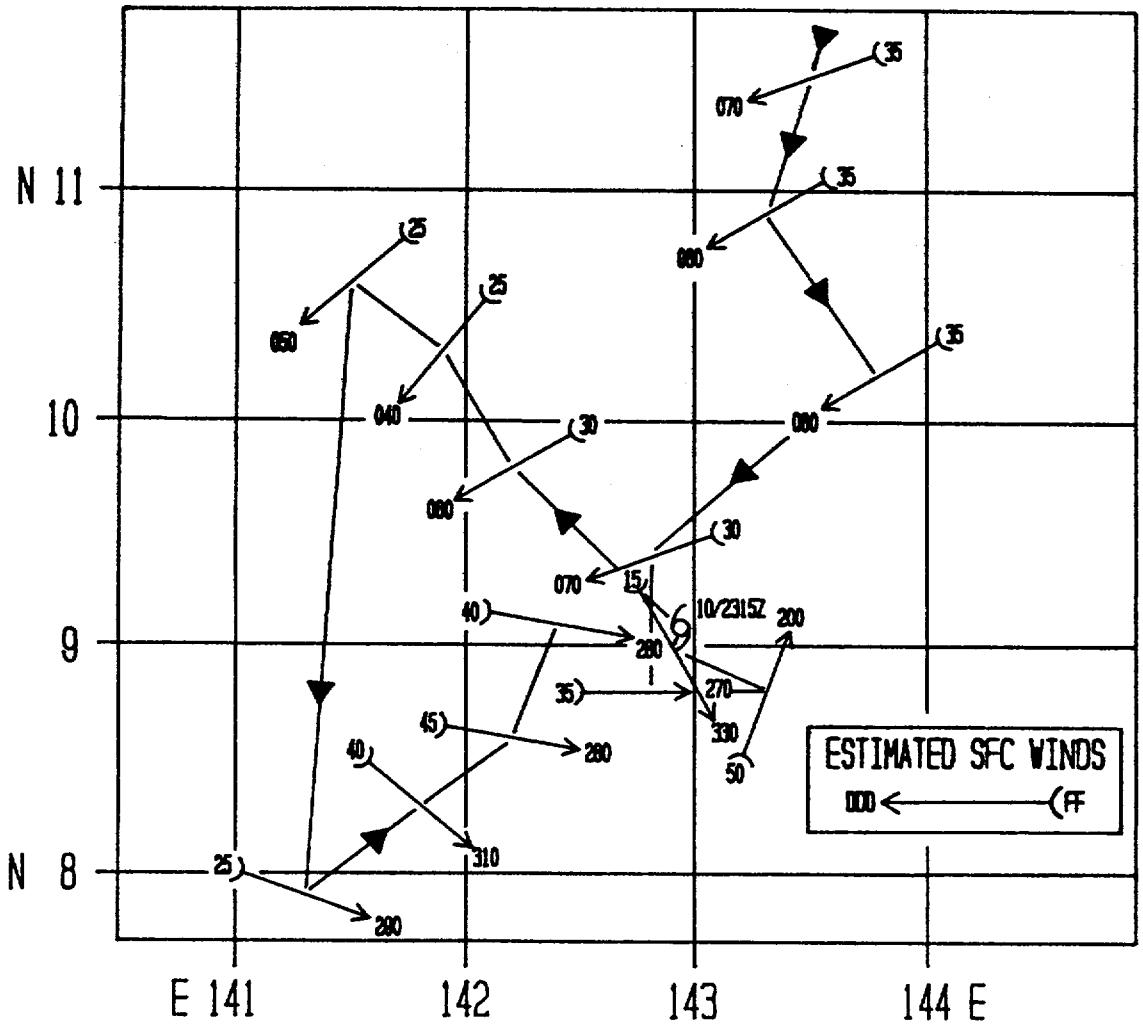

Figure 3-02-1. Plot of aircraft reconnaissance data from the third mission into Tropical Storm Percy (02W) shows increasing surface winds near the center.

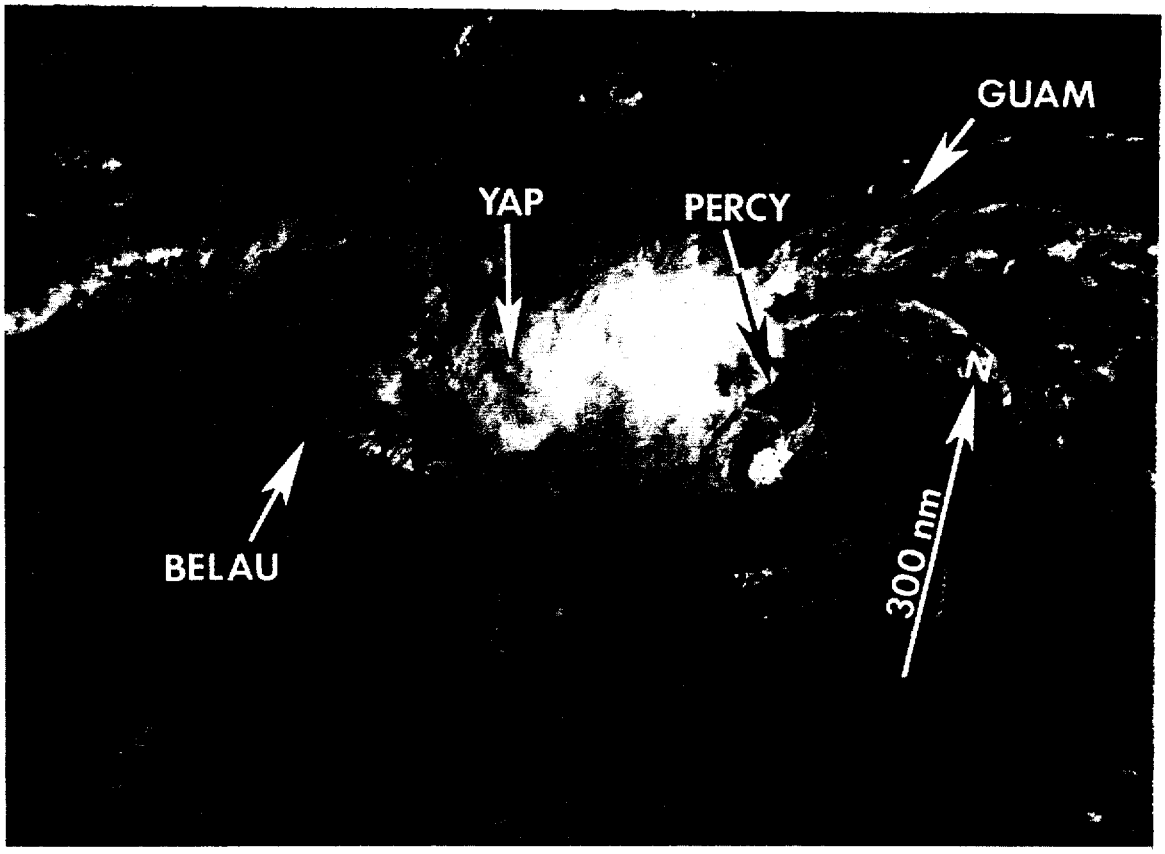

Figure 3-02-2. Tropical Storm Percy (02W), while southwest of Guam, showing an exposed low-level circulation center (110022Z April DMSP visual imagery).

However, the weakened disturbance continued to drift slowly westward for the next three days and possessed fair potential for significant development. By 101407Z the convection and organization had again improved, and the vertical wind shear on the system decreased sufficiently to justify the issuance of a third TCFA. Satellite intensity analysis (Dvorak, 1984) estimated maximum surface winds of 25 kt (13 m/sec) at that time, however, an aircraft daylight investigative mission flown on the morning of the 10th produced unexpected results.

Enroute to the circulation, the aircraft reported gradually increasing flight-level winds (1500 ft (457 m)) and observed surface winds from 30 kt (15 m/sec) near Guam to 40 kt (21 m/sec). Upon reaching the expected location of the low-level cyclonic circulation, the Aerial Recon- naissance Weather Officer (ARWO) reported flight-level winds of 56 kt (29 m/sec) and surface winds of 50 kt (26 m/sec) at 102325Z. The center location was consistent with the increasing surface winds encountered enroute (Figure 3-02-1); however, the magnitude of the winds were inconsistent with

the minimum sea-level pressures (MSLPs) enroute (1010 mb to 1003 mb) and at the circulation center (1001 mb). Dvorak satellite intensity analysis at 110022Z estimated 25 kt (13 m/sec) surface winds (Figure 3-02-2). This was more consistent with the extrapolated MSLPs. According to Atkinson and Holliday (1977), an environmental MSLP of near 1012 mb, together with maximum sustained surface winds of 50 kt (26 m/sec) usually implies a central MSLP of about 987 mb. After the aircraft reconnaissance flight-level wind observations, were double-checked, Tropical Depression 02W was upgraded to a tropical storm.

Aircraft reconnaissance was available again at 112100Z. Flight-level and surface winds were much lighter than observed 24-hours earlier. Values ranged from 20 to 32 kt (10 to 16 m/sec) at flight level enroute to the early fix at 112120Z, and 15 to 20 kt (8 to 10 m/sec) prior to the primary fix at 112354Z. The Dvorak satellite intensity analysis at 122304Z estimated 25 kt (13 m/sec) maximum sustained surface winds. As a result, the final warning on Tropical Storm Percy (02W) followed at 130000Z. Percy's circulation persisted as an exposed low-level center through the 15th, with the remaining convection located well to the northeast and southwest (Figure 3-02-3). The residual low-level eddy, that remained, finally dissipated near northern Luzon on the 19th of April.

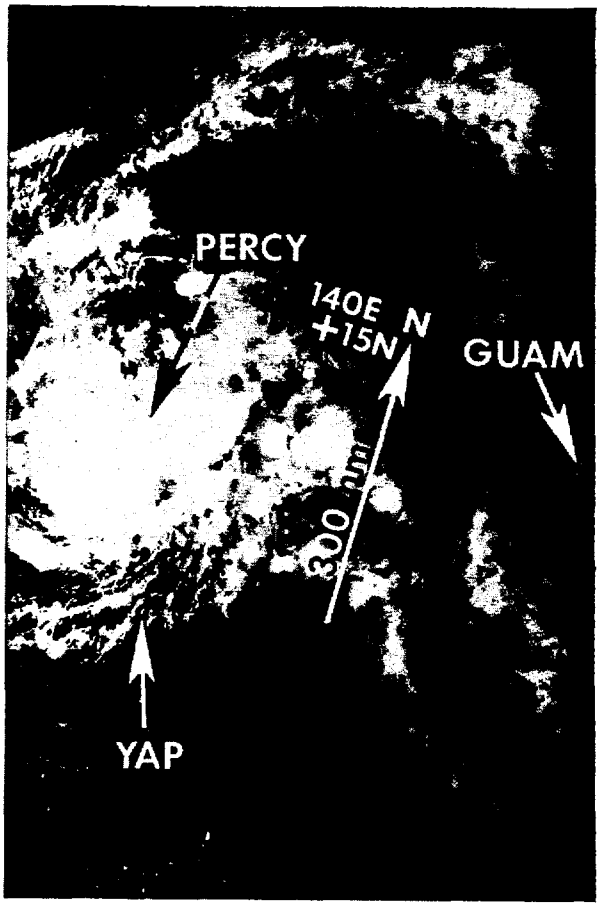

Figure 3-02-3. Tropical Storm Percy (02W) in the Philippine Sea just before the final warning was issued (122341Z April DMSP visual imagery).